NOTES.

WE regret to see the announcement of the death on January 10, in his sixty-first year, of Dr. F. Teller, chief geologist at the K. K. Geologische Reichsanstalt at Vienna, and member of the Vienna Academy of Sciences.

PROF. A. KEITH has been elected president of the Royal Anthropological Institute of Great Britain and Ireland, in succession to Mr. A. P. Maudslay. Mr. T. C. Hodson has been elected secretary of the institute, in succession to Mr. T. A. Joyce, who has become a vice-president.

M. B. BAILLAUD, director of the Paris Observatory, has been elected president, and M. H. Deslandres, director of the Meudon Observatory, vice-president, of the Paris Bureau des Longitudes for 1913.

THE death is announced, in his fifty-ninth year, of Dr. G. A. Gibson, of Edinburgh, who was a well-known authority on diseases of the heart. His work on "Diseases of the Heart and Aorta," published in 1898, established his reputation as a specialist.

THE Copenhagen correspondent of *The Daily Chronicle* reports that at a special audience on January 20 King Christian decorated Dr. V. Poulsen and Prof. P. O. Pedersen with the Medal of Merit in gold on account of the honour they have brought to Denmark by their work in connection with wireless telegraphy and telegraphones.

DR. E. M. KINDLE, for many years attached to the palæontological staff of the United States Geological Survey, at Washington, has accepted a similar position on the Geological Survey of Canada. Mr. Burling, for many years assistant to Dr. Walcott in the palæontology of the Cambrian rocks of North America, has also joined the technical staff of the Canadian Survey at Ottawa.

EXTENSIVE preparations are being made for the forthcoming meeting of the International Congress of Zoology to be held in the museum of the Oceanographic Institute at Monaco, March 25-30. Numerous collections from various expeditions and countries are being exhibited in the spacious halls of the institute. The aquarium at Monaco and the Russian Biological Station, Villefranche, are also expected to furnish interesting material for discussion during the congress.

A SPECIAL general meeting of the Royal Geographical Society was held on January 15 to consider, among other matters, the proposal to admit women as fellows of the society. The president (Lord Curzon of Kedleston) moved the resolution: "That the society approve of the election of women as fellows," and it was carried by 130 votes to 51. In future, therefore, women will be eligible for admission as fellows on the same basis as men.

ON Thursday next, January 30, Prof. B. Hopkinson will deliver the first of two lectures at the Royal Institution on recent research on the gas engine, and on Saturday, February 8, Sir J. J. Thomson will begin a course of six lectures on the properties and constitution of the atom. The Friday evening discourse on January 31 will be delivered by Mr. George M. Trevelyan, on the poetry and philosophy of George Meredith, and on February 7 by Sir John Murray, on life in the great oceans.

THE will of the late Mr. Rowland Ward, the taxidermist, directs that the trustees with respect to his charitable bequests shall expend 500*l*. per annum out of the income of his residuary estate, after the legacies and annuities specified have been paid, for a period of ten years in the purchase of specimens to be presented to the Natural History Museum, South Kensington. The residue of his estate is left in equal shares to such eight of fourteen selected charitable and other institutions as his widow shall choose. In default of his widow's selection within twelve months of the testator's decease, the whole of the fourteen institutions—which include the Natural History Museum—are to share equally.

MR. A. C. CLAUDET, whose death on January 17 will be widely regretted, was born on June 9, 1855, and was the eldest son of the late Mr. Frederick Claudet, of London and Cannes, the founder of the well-known firm of assayers and metallurgists. He was educated privately and at the Royal School of Mines, where he took the associateship in metallurgy in 1878. He was one of the best-known and most universally respected members of the mining and metallurgical community, and had been treasurer of the Institution of Mining and Metallurgy from its foundation in 1892 to the day of his death. He was president of the institution in 1906-7, and had also been a trustee for a number of years. At various times he also served on the council of the Institute of Chemistry, the Faraday Society, and on those of other scientific bodies. He took a keen and active interest in various educational movements to which he devoted a great deal of time, and which he generously assisted financially. These movements included the reorganisation, rebuilding, and equipment of the Royal School of Mines, the establishment of the Imperial College of Science and Technology, the Imperial College Union, &c., and he served on several committees connected therewith. He was an active member of the executive committee of the Bessemer Memorial Fund, from which the Bessemer Laboratory at South Kensington was equipped. He and Mr. Hennen Jennings, of Washington, D.C., established a "post-graduate grants fund," under the auspices of the Institution of Mining and Metallurgy to supplement the scholarships given by the institution to assist graduates to take practical courses in mines and works in the chief mining centres of the world, and many young engineers have been assisted in this way to bridge the period between college and their actual professional career with excellent results. His noble qualities of heart and mind are not so common as to make his death anything but a real loss to an unusually large number of friends, both personal and professional.

THE Home Secretary has appointed a committee to inquire and report as to the conditions necessary for the adequate and suitable lighting (natural and artificial) of factories and workshops, having regard to the nature of the work carried on, the protection of the eyesight of the persons employed, and the various forms of illumination. The committee consists of the following members:—Dr. R. T. Glazebrook, C.B., F.R.S. (chairman), Mr. Leon Gaster, Prof. F. Gotch, F.R.S., Dr. J. Herbert Parsons, Mr. W. C. D. Whetham, F.R.S., and Sir Arthur Whitelegge, K.C.B. The secretaries of the committee are Mr. D. R. Wilson and Mr. C. G. Paterson. Any communications regarding the inquiry may be addressed to Mr. D. R. Wilson at the Home Office.

THE committee which has been formed from representatives of several of the principal agricultural institutions of this country for the purpose of securing adequate British representation at the tenth International Congress of Agriculture, to be held at Ghent, Belgium, on June 8-13 next, is making an appeal for adherents to this important congress, and also for the contribution of papers on agricultural subjects. The subscription for members, who will receive the publications of the congress gratuitously, and have the right of taking part in the discussions, has been fixed at 20 francs (16*s*.) Subscriptions should be sent to the secretary, British committee (Mr. H. Chambers), Craven House, Northumberland Avenue, W.C., with whom those desirous of reading papers at the congress should communicate.

ACCORDING to an article in *The Times* of January 16, the council of the Zoological Society has received, and accepted, an offer from Mr. J. N. Mappin, head of the firm of Messrs. Mappin and Webb, Ltd., to install in the gardens a series of terraces in rockwork for the better display of certain groups of the larger animals. In tendering a vote of thanks to Mr. Mappin for this munificent offer, the council intimated that the proposed structures are to be known as the Mappin Terraces. The site on which they are to be erected is the one where the special Malay and Nepalese collections were exhibited last summer; work is to be commenced at the earliest possible date, and it is hoped that the whole installation will be completed within a twelvemonth. That it will enhance the attractions of the ever-popular menagerie cannot be doubted, and it is expected that it will also conduce to the well-being and health of the animals. In making his offer Mr. Mappin expressed the hope that the council might see its way to allow shop-assistants to enter the gardens at a reduced payment on certain days, a suggestion which was favourably received by that body. The council has also accepted a gift of 1000*l*. from Sir J. Key Caird, Bart., for the erection of a new insect-house.

WE regret to have to record the sudden death of Dr. O. T. Williams, hon. assistant-physician, Royal Infirmary, Liverpool, and lecturer on pharmacology and demonstrator of biochemistry in the University. Dr. Williams was cut off in the early prime of a life of great promise. He was only thirty-five years of age, and succumbed to an attack of acute pancreatitis after a few days' illness. During the past ten years he had published many important papers on the biochemical problems related to disease. His work was concerned chiefly with the biochemical problems of digestion and metabolism, such as the nature and constitution of the lipoids of tissues and organs, the lipoids of diabetic blood, the nature of the protein in albumosuria, abnormal fat assimilation associated with some diseases of the intestine, and certain biochemical changes associated with appendicitis. An account of Dr. Williams's published papers alone gives but little idea of the influence he was beginning to exert upon the progress of research in medical science in Liverpool, and in forming high ideals of the work of the physician as a scientific worker in the minds of the younger men in the city. His early death will be long lamented by many whose minds he influenced.

THE death of Colonel F. Bailey, R.E. (retired), at Edinburgh on January 21, will come as a shock to foresters in many parts of the world. Colonel Bailey was one of the early pioneers when, forty years ago, the modern science of forestry was taken over by Englishmen from the Continent. He is best known as having for many years conducted the course of forestry at Edinburgh University. Several of his pupils now fill the most important forest appointments in the Empire. When a Captain in the Royal Engineers, Colonel Bailey was selected, so far back as 1871, to take charge of the survey branch of the Indian Forest Department. He held this important post until 1884. Latterly he also had charge of the Indian School of Forests at Dehra Dun. In 1884 he was appointed by the Secretary of State for India to take charge of the English students following the course of instruction at the Nancy Forest School. In 1887 he was decorated by the French Government in recognition of his forest services. He returned to India, temporarily, in 1887, and for some time acted as Inspector-General of Forests for that country. In 1907 failing health compelled the resignation of the Edinburgh lectureship; in July last the Senatus of the University conferred upon him the honorary degree of LL.D. Until his death he was hon. editor of the half-yearly forestry publication of the Royal Scottish Arboricultural Society, of which he was president in 1898. He was the author of papers on forestry far too numerous to mention here. As to his work in the field, he will be remembered as the framer of "working plans" for two important forest estates in Scotland, the first of their kind. The best known of these, that for Novar, is held to be well fulfilling his calculations and anticipations. He also helped Lord Lovat and Captain Stirling of Keir in the preparation of that most detailed and practical working plan of last year for the Glen Mor area on the Caledonian Canal.

THE Horace Dobell lectures of the Royal College of Physicians were delivered by Dr. C. J. Martin, F.R.S., the subject being "Insect Porters of Bacterial Infections." The lectures form a very complete summary of our knowledge of the conveyance of typhoid fever and diarrhœa by house-flies, of plague by fleas, and of relapsing fever by ticks; lice and bugs are also referred to. Many details are given of the anatomy of the insects, and a full bibliography is appended.

THE January number of *Bedrock* (No. 4, 1913) contains the full text of Dr. Metchnikoff's Priestley lecture, "The Warfare against Tuberculosis," delivered before the National Health Society, an abstract of which was published in these columns. Dr. Eric Pritchard writes on "the milk problem," dealing with the question of the effect of heat as applied in pasteurisation and sterilisation of milk. He is satisfied that infants may be satisfactorily reared on freshly boiled milk and also on dried milk.

A PARASITIC fungus (*Empusa muscae*) of the house-fly has long been known, and its use has been suggested as a means of destroying flies. Hitherto the fungus has not been artificially cultivated, but Mr. Edgar Hesse now claims to have done this, and with his cultures to have infected and destroyed flies. The fungus attacks the house-fly (*Musca domestica*), the lesser house-fly (*Fannia canicularis*), and the stable-fly (*Stomoxys calcitrans*). It was formerly believed that the fungus attacks the fly from without, but Mr. Hesse finds that the spores are swallowed and probably germinate in the crop, and thence invade the tissues of the fly. The matter has been brought to the notice of the Local Government Board, by which it is being considered and examined. The evidence of the conveyance of disease germs by flies is complete, and the fungus might, therefore, be employed to destroy flies.

SIR RONALD Ross delivered a lecture on medical science and the tropics at a meeting of the Royal Colonial Institute on January 14. He said that he cannot but feel that the reason why tropical Africa has not become civilised is due to the fact that the great tropical diseases affect not only immigrant Europeans but are almost equally disastrous to the natives. The ravages of malaria, yellow fever, kala-azar, dysentery, plague, and cholera were reviewed. The death-rate fell remarkably between 1903 and 1911, owing to knowledge accumulated by a band of enthusiastic investigators, who, however, are most inadequately remunerated. Sir Ronald Ross said that Britain gives probably less than 50,000*l.* per annum throughout the Empire for medical research, and yet medical research benefits some fifty millions of white subjects of the Empire. Mr. Austen Chamberlain, who presided, instanced as an example of the value of tropical medical research the fall in the invaliding rate of European officials between 1904 and 1911 from 63 to 25 per 1000. He made an earnest appeal for funds on behalf of the schools of tropical medicine.

THE University of California, in No. 4, vol. x., of its ethnological series, publishes an elaborate monograph on the tribe of Salinan Indians, which has been prepared by Mr. J. Alden Mason. The task of inquiry has been difficult owing to the lack of information regarding the stock itself, and the existence of similar conditions among the adjacent tribes. The Salinans occupy a position between the typically central culture of the northern groups and that of the Chamash to the south. Their general characteristics are a dependence primarily on vegetable food, chiefly acorns, a great stability of population, absence of gentile organisation, a weak development of the arts, of war, and of ritualism. In spite of these drawbacks, the present monograph, with its abundant details of their ethnology and culture, shows a considerable advance on our knowledge of the natives of California.

THE Queensland Museum has issued the first volume of a series of memoirs which promises to supply a valuable addition to our knowledge of the natural sciences and ethnology of Australia. The present issue opens with a paper on Papuan mummification by the director, Dr. R. Hamlyn-Harris, in which he describes two specimens from Torres Straits. The body was placed on a platform with a fire beside it, partly for the comfort of the spirit, and partly to assist in dispelling the noxious fumes arising during the process of desiccation. The corpse was then removed to the sea and cleaned, the interior being filled with pieces of the dried sago-palm. It was hung up to dry, and adorned by the insertion of pieces of Nautilus shell for eyes, the body was smeared with ochre and oil, and various ornaments were attached to it. When dried, it was fixed to the central pole of the hut, and after some years the head was made over to the widow, and the mummified corpse was taken to one of the gardens of the deceased and allowed to decay, or in some cases it was buried inside the hut.

IT is announced in the January number of *The Entomologist's Monthly Magazine* that, in consequence of having taken up his residence abroad, Lord Walsingham has felt compelled to resign his joint editorship of that journal.

FROM a distributional point of view considerable interest attaches to the identification by Dr. C. R. Eastman (Ann. Carnegie Mus., vol. viii., No. 2, 1912) of remains of doubly-armed fresh-water herrings of the genus Diplomystus in Tertiary deposits in Guinea. For the genus—in addition to several other localities also occurs in a Tertiary formation on the Brazilian coast, and thus seems to indicate the prevalence of similar conditions during Tertiary times on the two sides of the Atlantic. The author discusses the bearing of the new fact on the theory of a former land connection between western Africa and eastern North America by means of an hypothetical "Helenis."

A COMPACT summary of the knowledge we now possess concerning the structure, origin, and economics of pearls and mother-of-pearl is given in a paper on "Perlen" contributed by Prof. E. Korschelt to *Fortschritte d. naturwissenschaftlichen Forschung* (Band vii., 1913). In sixteen short sections Prof. Korschelt gives an impartial account of the most important work of the last ten years. In connection with the origin of pearls, it is becoming quite clear from the work of Rubbell, Dubois, and Jameson that by far the greater number of pearls are formed around particles that are closely related to certain kinds of shell substance. We might, in fact, divide the causes of pearls into internal and external causes. The external causes include worm and other parasites and sand grains, and both are actually proved causes. The internal causes appear to be more interesting, and, so far as the pearls in the fresh-water mussel (*Margaritana margaritifera*) and possibly the Ceylon pearl oyster (*Margaritifera vulgaris*) are concerned, seem to be the more important. The paper is well illustrated, and as a short summary is admirable, though many sections undoubtedly require more detailed treatment.

DR. W. C. STURGIS has forwarded a copy of his recently published "Guide to the Botanical Literature of the Myxomycetes." This bibliography of an extensive and important group of Protista, which has been claimed alike by the botanist and the zoologist, gives the titles of a very large number of publications between the years 1875 and 1912, and though the compiler has confined his attention somewhat closely to citations from botanical writers, thus omitting a certain amount of valuable material in the fields of cytology and physiology especially, it will prove extremely useful to students of these organisms, whether botanical or zoological. The guide is issued by the Colorado College, as Science Publication, vol. xii., No. 11.

THE annual report of the Director of Agriculture for the Federated Malay States deals mainly with rubber, and shows an astonishing development of this crop No fewer than 107,200 acres of land were opened during the year, while the total output of rubber was but little short of twenty-two million pounds, against twelve and a half million of the previous year; prices were also well maintained. Insect pests occur, but not to a serious extent; according to the entomologist, white ants (*Termes gestroi*) are decreasing, and the other pests can now be controlled. Fungoid diseases cause some trouble, especially that brought about by *Fomes semitostus*, but this is now amenable to treatment.

THE Meteorological Committee has recently issued the seventh edition of "A Barometer Manual for the Use of Seamen." The work was originally issued by the Meteorological Council in 1884, as a revise of the "Barometer Manual" prepared by Admiral FitzRoy, which had then been long out of print. Both these manuals attained great popularity; altogether about 25,000 copies of the revised editions were disposed of, this large supply being partly due to the adoption of the work as a text-book for mercantile marine examinations. The manual now under report (83 pp., large 8vo) was prepared in the marine division of the Meteorological Office under the superintendence of Commander Campbell Hepworth, C.B. (marine superintendent). It differs from the last edition mainly by the addition of certain paragraphs in the text, temperature conversion tables, and other minor details, and, like some of its predecessors (which have been referred to in our columns), is well illustrated by figures and by plates compiled from material in the possession of the office. The sections dealing with barometric pressure and its variations, with gales of the temperate zones, and tropical storms are very interesting and instructive, both for seamen and others, and, as stated in the title, the work is really "a text-book of marine meteorology."

IN the Proceedings of the Tokyo Mathematico-Physical Society, vi., 17, Mr. T. Terada considers the experimental fact that the velocities of earthquake waves fall short of the values calculated by hydrodynamical methods. His analytical work is devoted to examining whether this discrepancy can be accounted for by the yielding of the earth's crust, regarding the latter as a flexible bed resting on an inner fluid magma. The results show that the explanation is a plausible one, though the analysis involves a number of assumptions not realised in practice.

FOR some time past, the belief that Newton's law of gravitation is only approximate, and that the influence of a gravitative field depends on the time during which it has existed, has received increasing attention from physicists and astronomers. In a paper contributed to the *Wiener Sitzungsberichte* (cxxi., 1) Prof. G. Jaumann builds up a theory of gravitation based on a modification of Laplace's and Poisson's differential equations. This modification consists in the addition of an extra term proportional to the time flux of the potential, and it leads to the result that in empty space the potential is propagated according to the same law as temperature in the diffusion of heat. The theory is applied to planetary motion, variation of latitude, and conditions of stability of the solar system.

WE have had an opportunity of experimenting with the "Rainbow Cup," which Mr. C. V. Boys showed a few months ago at the Royal Society soiree, and find it an interesting piece of apparatus. The cup has its lip horizontal, and can be spun about a vertical axis. When a soap film is placed on the top of the cup and the cup then spun, the film thins rapidly in the middle, and in a good light the display of colours is brilliant. By altering the direction of rotation coloured patterns can be produced which might be used as the basis of decorative designs. By continuing the rotation or by tilting the film a black spot can be obtained and a study of its motions under different conditions soon shows that it is thinner than any other part of the film. The makers of the "Rain bow Cup" are Messrs. J. J. Griffin and Sons, Ltd., Kingsway, W.C.

WE have received a copy of the second annual report of the work of the Radiological Institute attached to the University of Heidelberg, a report which appeared in part 43 of the *Elektrotechnische Zeitschrift* for 1912. The institute was founded in 1910, has Prof. Lenard for director, and a further staff of three assistant lecturers and demonstrators in addition to an instrument-maker and attendant. In the two years it has been in operation it has produced a long series of researches published in scientific journals in this country, as well as in Germany. These may be grouped under the following heads:—Absorption and secondary radiation of kathode rays, photoelectric effects, electrical conductivity of gases and of flames, phosphorescence and radio-activity, including its application to medical work. We wish every success to this active and progressive institute.

The receipt of the notification of the Metropolitan Gas Referees for the current year serves as a reminder that the quality of the gas supplied to the County of London is subject to severe control. The threat of a monopoly caused by the amalgamation of various gas companies led to increased Parliamentary control, and commencing with the City of London Gas Act, 1868, there are several Acts dealing with the London gas supply, the latest being the London Gas Act, 1905. Subject to these Acts, the details of the methods to be used in gas-testing are left to three gas referees, who have to prescribe and certify the situation and number of the testing places, the apparatus and materials for testing the illuminating power, calorific power, purity and pressure of the gas provided by the companies. The notification of the gas referees gives the methods prescribed in detail. The controlling authorities (the London County Council and Corporation of the City of London) have also certain discretionary powers as to the times of testing, and these authorities also appoint the gas examiners.

Messrs. Charles Griffin and Co., Ltd., have published a tenth edition of an "Elementary Manual on Applied Mechanics," by Mr. A. Jamieson. Many new examination questions have been added, and the symbols agreed to by the International Electrotechnical Commission, held in Turin in 1911, have been included.

Messrs. J. Wheldon and Co., 38 Great Queen Street, Kingsway, W.C., have just issued a catalogue (No. 60) of books and papers on microscopical science in most of its branches. The catalogue includes a number of valuable works, both ancient and modern, and the classification makes it easy to find the works available in the various departments of microscopy.

OUR ASTRONOMICAL COLUMN.

Nova Geminorum, No. 2.—The photometric and spectroscopic observations of Nova Geminorum, No. 2, made at the Harvard and Arequipa Observatories, are discussed in Circulars 175 and 176 of the Harvard College Observatory.

Prof. Wendell's magnitude observations show several fluctuations, with maxima on March 14, 17, 23, 30, and April 5; the magnitude increased considerably during the night of March 14.

The spectra were taken between March 13 and June 5, 1912, inclusive, and are discussed by Miss Cannon; some are reproduced in the second circular. On March 13 the spectrum was not of the usual nova type, *i.e.* bright lines accompanied by dark lines; but was of the class F_5 (Procyonian) type, with slight variations, having dark lines only; a reproduction of the spectrum of Procyon is placed above the nova spectrum on the plate accompanying the circular, and shows the similarity very strikingly. Miss Cannon remarks on the fact that the earliest spectrum of Nova Persei (2) also lacked bright lines, and that these are the only two novæ of which the spectrum has been secured while the star's light was still rising to its primary maximum. The spectrograms taken on March 14 show the spectrum in a transitional state, the characteristic "nova spectrum" being fully developed on March 16. The bright band at K, faint on March 20, had disappeared by March 22, only a narrow dark line remaining; on March 27 a brightening in the region of the spectrum near λ4640 was noticeable, the continuous spectrum was faint, and the dark hydrogen lines not clearly seen, but on March 30 both the continuous spectrum and the dark hydrogen lines were again more intense, the latter being distinctly double. A spectrum taken on May 10 is stated by Miss Cannon to show increased intensities for bands at λλ4640 and 5016, while a bright band appears on the less refrangible edge of Hγ; this probably represents the appearance of the nebula line 5008 and the line which appeared during the nebula stage of previous novæ at 4365.

The Variable Star 87, 1911.—From time to time we have referred in these columns to Mr. D'Esterre's notes describing a possible nova in the constellation Perseus. The star was conspicuous on plates taken by Mr. D'Esterre on November 13 and 21, 1911, but did not appear on three previous dates. Prof. E. C. Pickering now states, in Circular 176, that from an examination of the Harvard photographs, Miss Cannon finds that the star was of the eleventh magnitude on October 30, 1896, September 17, 1899, and January 28, 1902, but was not visible on sixty-eight other plates, including one taken, with sixty minutes' exposure, on November 3, 1885, which shows faint stars.

Prof. Pickering concludes that this object is certainly not a nova, but appears to be a variable star with a large range which is bright during a relatively short portion of its variations; the period does not appear to be uniform, and he suggests that the object possibly belongs to the U Geminorum and SS Cygni class of variable stars.

The Transit of Mercury, November 14, 1907.—Prof. Donitch observed the transit of Mercury which took place on November 14, 1907, from a special station established at Assuan. The chief observations were spectroscopic, the spectra being taken with a special spectrograph, at the times of internal contacts, the slit coinciding with the sun's limb. The resulting spectra show no lines other than those of the solar spectrum, and lead Prof. Donitch to the conclusion that the planet does not possess an atmosphere extending beyond 15 km. from its surface; but for the present he hesitates to consider this conclusion as rigidly established. (*Bulletin de l'Académie Impériale des Sciences de St. Pétersbourg*, No. 17.)

Astronomical Annuals.—We have received M. Flammarion's "Annuaire Astronomique," for 1913, and the "Anuario" of the Madrid Observatory. In addition to its usual complete series of tables and ephemerides, the former contains useful illustrated reviews of the progress of astronomy and meteorology during 1912, several special articles, and a frontispiece showing six untouched photographs of the annular solar eclipse of April 17, 1912.

The "Anuario," besides the ordinary tables and ephemerides, has a popular article on new stars, a long article on the determination of azimuths in the field, an interesting review of solar physics, with special reference to the development of the spectroheliograph, and a *résumé* of the solar and meteorological observations of 1911 and 1912.